Introduction toTerminology

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Overview

- Acknowledgement
- What's the Matter?
- What is Terminology?
- Additional Information
- Terminology and Information Modelling
- Summary

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Acknowledgement

This presentation is based on material collected by:

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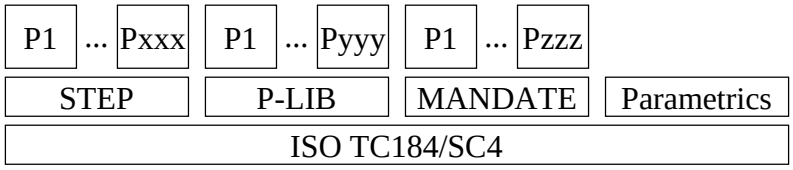
What's the Matter?



- Priority 1:
  - a harmonized set of ISO TC184/SC4 common terms
  - sets of harmonized standard specific terms, consistent with the ISO TC184/SC4 common terms
- Priority 2:
  - a set of terms harmonized across all ISO TC184/SC4 standards

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What's the Matter?

- If ***your part*** (project, object, etc.) is not the same as ***my part*** (project, object, etc.), we are in trouble!
- We'll have problems to communicate
- Our systems will not be able to share data in a reasonably useful and efficient way

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What's the Matter

Terminology in a nutshell:

- Do I understand? (what I'm doing)
- Do we understand each other?
- Do they (the users) understand us?
- **What do you mean exactly?**

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What's the Matter?

This kind of work enables:

- a common understanding for us
- the users to share our common understanding
- an extensible and maintainable ISO TC184/SC4 set of terms

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What's the Matter?

What does all this mean ...

... exactly?

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What is Terminology?

- Definition
- Concepts
- Concept Systems
- Definitions
- Terms
- Terminology Documentation

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Definition

Science of how to create and maintain **coherent sets of definitions**

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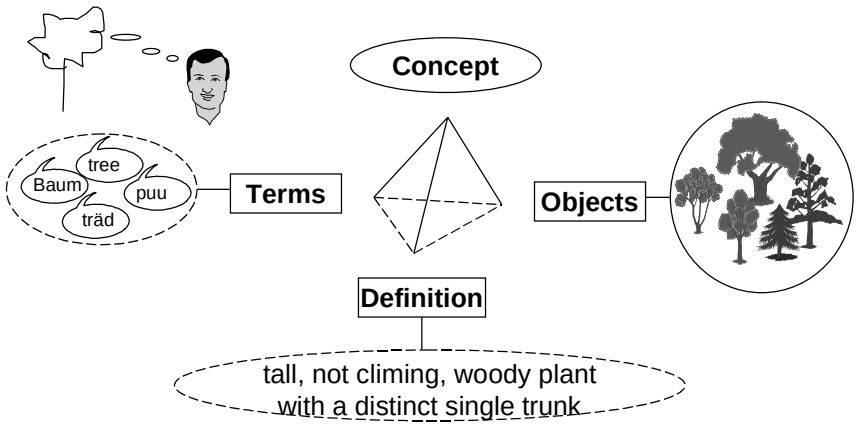
Concepts

The Concept Pyramid



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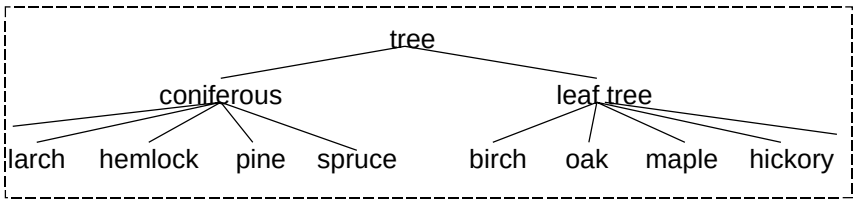
Concept Systems

Generic Concept System



A **generic relation** is a relationship between two concepts, that share an identical set of characteristics, but one of them, the **subordinate concept**, has at least one additional delimiting characteristic

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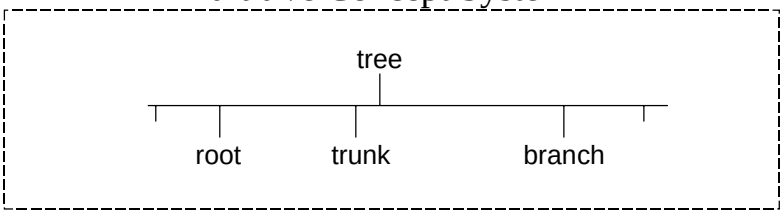
Concept Systems

Partitive Concept System



A **partitive relation** is a relationship between two concepts, in which the **superordinate concept** relates to a whole, while the **subordinate concept** relates to a part of the whole

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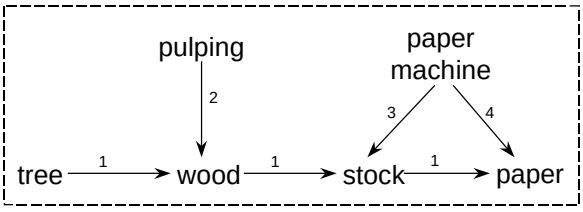
Concept Systems

Associative Concept System



Relations:
1 origin and raw material
2 process and material
3 apparatus and material
4 apparatus and product

Any relationship between concepts, which is neither a generic relation nor a partitive relation, is called **associative relation**

Note:
All non-binary concept relations are associative.

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Definitions

Types of Definitions

Intensional definition

- always based on generic superordinate concept
  - that covers the basic essential characteristics
  - places the concept into its proper context among simlar concepts
- the rest of the definition consists of the essential characteristics needed to differentiate that concept from its superordinate concept and from its **coordinate concepts**
- Example:

  inert gas
  gas that in the natural state is chemically inactive

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Definitions

Types of Definitions

Extensional definition

- lists the objects covered by the concept to be defined
- Example

  inert gas
  helium, neon, argon, crypton, xenon, or radon

Definitions

Definition vs Explanation

- Explanation

  ground water (Collins English Dictionary)
  underground water that has come mainly from the seepage of surface water and is held in the soil and in previous rocks

- Definition

  ground water (TNC 86, Glossary of Geology)
  water that fills the cavities in the *saturated zone* and whose *pore pressure* is higher than or equal to the atmospheric pressure

  vadose water (TNC 86, Glossary of Geology)
  water in the *unsaturated zone* with *pore pressure* lower than or equal to the atmospheric pressure

Definitions

Definition Guidelines (ISO 10241)

A definition shall contain, or start with, the nearest superordinate term.

Example:

- **topology:** refers to properties of geometric forms that remain invariant when the forms are deformed or transformed by bending, stretching, or shrinking
- **topology**
  description of how geometric objects are related in space to each other

Definitions

Definition Guidelines (ISO 10241)

A definition shall only contain delimiting characteristics. Other information should be put in a note.

Example:

- **area:** a generic term for a bounded, continuous, two-dimensional object that may or may not include its boundary
- **area**
  bounded, continuous, two-dimensional object

  Note: An area may or may not include its boundary.

Definitions

Definition Guidelines (ISO 10241)

A definition shall not be too narrow or too broad.

Example:

- **quality:** an essential or distinguishing characteristic necessary for product data to be fit for use
- **quality**
  totality of characteristics of a product that bear on its ability to satisfy stated and implied needs

Note: The first one is an example of an elliptic definition.

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Definitions

More Definition Guidelines (ISO 10241)

- A definition shall not begin with an expression such as “term used to describe ...”.
- Unless there is a specific reason, a definition shall not begin with an article.
- A definition shall have the same grammatical form (e. g. verb, adjective, or noun) as the term. The grammatical form shall be indicated whenever there is a risk of misunderstanding.

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Definitions

More Definition Guidelines (ISO 10241)

- Avoid circular definitions, both internal circular definitions and external circular definitions.
- Unless thee is a specific reason, a definition shall consist of a single phrase.
- Use already defined terms as components in the definitions (instead of repeating the definitions of those terms).

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Terms

Requirements on Terms

- to be precise
  product specification instead of **specification string**
- to be well-established
  road map instead of **traffic network description**
- to be multi-lingual or easily translatable
- to be transparent
  e. g. **operating manual**
- to be unambiguous (within every subject field)
  nuclear energy instead of **atomic energy**

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Terms

More Requirements on Terms

- to conform to accepted word formation principles and practice
- to permit the formation of derivatives

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Terminology Documentation

Requirements

- A terminology documentation shall consist of
  - definitions of terms
  - references to definitions of terms in other terminology documents
  - a sequence of reference documents from which terms undefined in this terminology document shall be resolved.
- Any term that is neither defined nor referenced in this terminology document nor defined in any of the reference documents, has its regular meaning in its language of origin.

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Additional Information

- ISO 10241
  International Terminology Standards - Preparation and Layout
- ISO 704
  Principles and Methods of Terminology
- ISO 1047
  Vocabulary of Terminology
- Heidi Suonnuti
  Guide to Terminology
  Editor: ISO/TC37 Secretariat, Austria

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Terminology and Information Modelling

- Terminology
  - textual definition of terms and of their relevant interrelations
  - intended for the human reader
  - support of "current practice" required
  - orthogonality of terms supports maintainability and extensibility
- Information modelling
  - formal and structural definition of terms and of their relevant interrelations
  - intended to support implementation
  - orthogonality of terms preferred
  - mapping between "current practice" and orthogonal terms is called *user interface design*

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Terminology and Information Modelling

- Information model issues
  - define every entity
  - ensure distinguishing characteristic for every subtype
  - model generic relations as sub-/supertypes
  - apply “single phrase” rule
  - re-use existing entities with their definitions
  - understand the difference between circular and recursive definitions
  - distinguish between reality and representation
  - apply term selection principles on names

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Summary

- Definition of concepts and of relevant inter-concept relationships
  - terminology
  - information model
  - classification system
- Terminology rules
  - help creating coherent sets of definitions
  - help improving information models
- definitions and information models in SC4 standards

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Summary

Terminology rules can help us
to make SC4 standards better.

LET'S USE THEM!

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